C.) REMARKS

This Response is filed in response to the Office Action dated July 17, 2006.

Upon entry of this Response, claims 1-16 will be pending in the Application.

In the outstanding Office Action, the Examiner rejected claims 7 and 8 under 35 U.S.C. 112, second paragraph, as being indefinite; rejected claims 1, 2, 5, 6, 11-14 under 35 U.S.C. § 103(a) as being unpatentable over Alsenz (U.S. Patent No.5,035,119) in view of Alsenz (U.S. Patent No.4,951,475); rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Alsenz (U.S. Patent No.5,035,119) as modified by Alsenz (U.S. Patent No.4,951,475) in further view of Shaw (U.S. Patent No. 4,947,655); indicated claims 3, 4, 10, 15 and 16 would be allowable if rewritten in independent form; and indicated claims 7 and 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 113, 2nd paragraph and to include all of the limitations of the base claim and any intervening claims.

Rejection under 35 U.S.C. 103

Rejection of Claims 1, 2, 5, 6 and 11-14

The Examiner rejected claims 1, 2, 5, 6, and 11-14 under 35 U.S.C. § 103(a) as being unpatentable over Alsenz (U.S. Patent No. 5,035,119), hereinafter referred to as "Alsenz-119" in view of Alsenz (U.S. Patent No. 4,951,475), hereafter referred to as "Alsenz-475."

Specifically, the Examiner stated that

> With regard to claims 1,2,5, and 6 Alsenz '119 discloses a refrigeration system comprising two compressors 218 and 220; a condenser 216; and two evaporators 214 and 215 in fluid connection with the compressors (see Figure 1). Alsenz '119 further teaches a control system 200 and 221 capable of controlling the two compressors capacity selection (column 16 lines 63-68). Alsenz '119 does not teach a system wherein each compressor has a plurality of discrete output capacities. Alsenz '475 discloses a refrigeration system with multiple compressors 12 and 16 having discrete output capacities (column 5 lines 54-59 and column 6 lines 22-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Alsenz '119 to incorporate the on/off compressors of Alsenz '475 into the system as it well known in the art discrete capacity compressors are more cost-efficient to operate than constant capacity

compressors.

Alsenz '119 furhter discloses a refrigeration system capable of performing the method of claims 11 and 12, as recited.

Alsenz does not teach a system wherein each multi-capacity compressor has a plurality of discrete output capacities and an operational state or a control system to generate the output capacities of each compressor. Alsenz '475 teaches a refrigeration system with compressors 12 and 16 having descrete output capacities (column 5 lines 54-59 and column 6 lines 22-25). Alsenz '475 further teaches a microprocessor controller 10 that controls the output capacity of the system compressors (column 3 lines 49-66 and column 4 lines 1-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Alsenz '119 with Alsenz '475 in order to reduce the cost in operating the refrigeration system. It is well known in the art discrete capacity compressors are more cost efficient the constant capacity compressors.

Applicants respectfully traverse the rejection of claims 1, 2, 5, 6, and 11-14 under 35 U.S.C. § 103(a).

Alsenz-119, as understood is directed to a control system for use in a refrigeration system having in a closed loop connection a compressor means, a condenser means, a plurality of evaporator means, each evaporator means connected to the condenser means and to the compressor, each evaporator means having an associated expansion valve. The expansion valves are connected between the condenser and the associated evaporator coil. Each valve includes an associated on-off modulator responsive to the instantaneous superheat of the refrigerant in its associated evaporator coil for generating a variable duty cycle on-off modulated solenoid control signal.

Alsenz-475, as understood, is directed to a system for controlling the capacity of a multiple-stage refrigeration or cooling system having at least one variable speed compressor operated in parallel with a plurality of commonly piped compressors. A microprocessor-based control system responsive to system parameters is utilized. The microprocessor is programmed with suction pressure ranges that control the energization and deenergization of compressors, the speed of the variable speed control compressors, and the desired time delays for improving the life of the compressors.

In contrast, independent claim 1 recites a refrigeration system comprising: a plurality of compressors, the plurality of compressors having a plurality of predetermined operating configurations, wherein each predetermined operating configuration of the plurality of predetermined operating configurations results in a predetermined output capacity for the refrigeration system; a condenser in fluid communication with the plurality of compressors; at least one evaporator in fluid communication with the condenser and with the plurality of compressors; a control system to control the plurality of compressors in response to a required output capacity for the refrigeration system, the control system being configured to select a predetermined operating configuration from the plurality of predetermined operating configurations that most efficiently satisfies the required output capacity for the refrigeration system; and wherein each compressor of the plurality of compressors having a plurality of discrete output capacities and each predetermined operating configuration for the plurality of compressors includes an operational state for each compressor of the plurality of compressors and a discrete output capacity for each operating compressor.

Independent claim 11 recites a method of controlling operation of a plurality of multi-capacity compressors in a refrigeration system, the method comprising the steps of: providing a refrigeration system having a plurality of multi-capacity compressors, a condenser and a plurality of evaporators connected in a closed refrigerant circuit; determining an amount of output capacity required by the refrigeration system; determining a configuration of the plurality of multi-capacity compressors having a predetermined output capacity to satisfy the determined amount of required output capacity, each multi-capacity compressor of the plurality of multi-capacity compressors having a plurality of discrete output capacities, wherein the determined configuration of the plurality of multi-capacity compressors includes an operational state for each compressor of the plurality of multi-capacity compressors and a discrete output capacity for each operating multi-capacity compressor; and generating control instructions corresponding to the determined configuration of the plurality of multi-capacity compressors to control the plurality of multi-capacity compressors to generate the predetermined output capacity for the refrigeration system.

> To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d

> 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

See Manual of Patent Examining Procedure, 8th Edition, Revision 5 (MPEP), Section 2143.03.

Several of the features recited by Applicant in independent claims 1 and 11 are not taught or suggested by Alsenz-119 and Alsenz-475. First, Alsenz-119 and Alsenz-475 do not teach or suggest the control system being configured to select a predetermined operating configuration from the plurality of predetermined operating configurations that most efficiently satisfies the required output capacity for the refrigeration system as recited by Applicant in independent claim 1 or determining a configuration of the plurality of multi-capacity compressors having a predetermined output capacity to satisfy the determined amount of required output capacity as recited by Applicant in independent claim 11. Neither the system in Alsenz-119 nor the system in Alsenz-475 determines an operating configuration to satisfy a required output capacity or a configuration of the plurality of multi-capacity compressors having a predetermined output capacity to satisfy a required output capacity as recited in claims 1 and 11. In both Alsenz-119 and Alsenz-475, the capacity of the system appears to be determined by a hunting technique that turns compressors on or off until the desired capacity demand is satisfied. *See* e.g., Alsenz-475, col. 6, lines 31-39. As understood by Applicant, there does not appear to be any teaching or suggestion in either Alsenz-119 or Alsenz-475 to determine an operating configuration in response to a particular required output capacity as recited generally by Applicant in independent claims 1 and 11. The Examiner is requested to identify the specific passages in Alsenz-119 and/or Alsenz-475 that teaches or suggests the determination of a configuration of multi-capacity compressors to satisfy a capacity demand.

Furthermore, Alsenz-119 and Alsenz-475 do not teach or suggest that each predetermined operating configuration for the plurality of compressors including an operational state for each compressor of the plurality of compressors and a discrete output capacity for each operating compressor as recited in claim 1 or the determined configuration of the plurality of multi-capacity compressors including an operational state for each compressor of the plurality of multi-

capacity compressors and a discrete output capacity for each operating multi-capacity compressor as recited in claim 11. As discussed above, the systems in Alsenz-119 and Alsenz-475 address the capacity requirements of the system by turning compressors on or off until the desired capacity demand is satisfied. Thus, the systems in Alsenz-119 and/or Alsenz-475 do not have a predetermined operating configuration for the compressors in response to capacity requirements and as such cannot include an operational state of each compressor and a discrete output capacity for each compressor in the predetermined operating configuration. As understood by Applicant, there does not appear to be any teaching or suggestion in either Alsenz-119 or Alsenz-475 to have an operating configuration including an operational state of each compressor and a discrete output capacity for each compressor as recited generally by Applicant in independent claims 1 and 11. The Examiner is requested to identify the specific passages in Alsenz-119 and/or Alsenz-475 that teaches or suggests the configuration of multi-capacity compressors includes the operational status of the compressor and the discrete capacity output for the compressor.

In addition, Applicant would like to point out that the passages in Alsenz-475 identified by the Examiner as relating to a compressor having a plurality of discrete output capacities, in fact, does not relate to a compressor having a plurality of discrete output capacities, but instead, relates to the "cutting in" and "cutting out" of compressors, which description corresponds to Applicant's discussion of the system in Alsenz-475 as turning on (cutting in) and off (cutting out) compressors until the desired capacity is obtained. The Examiner is requested to explain how column 5, lines 54-59 and column 6, lines 22-25 in Alsenz-475 teach or suggest a compressor with a plurality of discrete output capacities.

Therefore, for the reasons given above, independent claims 1 and 11 are believed to be distinguishable from Alsenz-119 and/or Alsenz-475 and therefore are not anticipated nor rendered obvious by Alsenz-119 and/or Alsenz-475.

Dependent claims 2, 5, 6, and 12-14 are believed to be allowable as depending from what are believed to be allowable independent claims 1 and 11 for the reasons given above. In addition, claims 2, 5, 6, and 12-14 recite further limitations that distinguish over the applied art.

In conclusion, it is respectfully submitted that claims 1, 2, 5, 6, and 11-14 are not anticipated nor rendered obvious by Alsenz-119 and/or Alsenz-475 and are therefore allowable.

Rejection of Claim 9

The Examiner rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Alsenz-119 as modified by Alsenz-475 in further view of Shaw (U.S. Patent No. 4,947,655), hereinafter referred to as "Shaw."

Alsenz-119 is directed to a control system for use in a refrigeration system as discussed in greater detail above.

Alsenz-475 is directed to a system for controlling the capacity of a multiple-stage refrigeration or cooling system as discussed in greater detail above.

Shaw, as understood, is directed to a refrigeration and air conditioning system employing multi-stage compressors, and utilizing a sub-cooler/economizer for sub-cooling the condensed refrigerant prior to vaporization in the evaporator.

Applicant submits that dependent claim 9 is distinguishable from Alsenz-119, Alsenz-475 and/or Shaw for at least the following reasons. To begin, dependent claim 9 is believed to be distinguishable from Alsenz-119, Alsenz-475 and/or Shaw as depending from what is believed to be an allowable independent claim 1 as discussed above. Furthermore, there is nothing in Shaw, as understood, that teaches or suggests any of the limitations in independent claim 1 not taught or suggested by Alsenz-119 and Alsenz-475.

Therefore, in view of the above, dependent claim 9 is believed to be distinguishable from Alsenz-119, Alsenz-475 and/or Shaw and therefore are not anticipated nor rendered obvious by Alsenz-119, Alsenz-475 and/or Shaw. In conclusion, it is respectfully submitted that claim 9 is not anticipated nor rendered obvious by Alsenz-119, Alsenz-475 and/or Shaw and is therefore allowable.

Rejection under 35 U.S.C. 112

The Examiner rejected claims 7 and 8 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter applicant regards as the invention.

Applicant respectfully traverses the rejection of claims 7 and 8 under 35 U.S.C. 112, second paragraph.

The Examiner stated that in claim 7, the language "predetermined operating conditions" had no previous mention in claims 1, 5, or 6 from which claim 7 depends. In response thereto, Applicant has amended claims 7 and 8 in a manner that is believed to overcome the Examiner's rejection.

Therefore, in view of the above, Applicant submits that claims 7 and 8 are not indefinite and comply with the provisions of 35 U.S.C. 112, second paragraph, and therefore is allowable.

Information Disclosure Statement

In the outstanding Office Action, the Examiner did not attach an Information Disclosure Statement submitted by Applicant with the Application on January 23, 2004 and received by the U.S. Patent and Trademark Office as indicated in Private PAIR. Applicant requests that the Examiner confirm that the references listed in the Information Disclosure Statement have been considered by the Examiner and provide Applicant with a copy of the Information Disclosure Statement initialed by the Examiner indicating that the references were considered. If the Information Disclosure Statement has not been considered by the Examiner, Applicant requests that the Examiner consider the references and provide Applicant with a copy of the Information Disclosure Statement initialed by the Examiner. If necessary, Applicant can provide the Examiner with another copy of the Information Disclosure Statement submitted on January 23, 2004.

Allowable Subject Matter

The Examiner objected to claims 3, 4, 10, 15 and 16 as being dependent upon a rejected base claim, but indicated that the claims would be allowable, if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner indicated that claims 7 and 8 would be allowable if rewritten or amended to overcome the rejections(s) under 35 U.S.C. 112, second paragraph, set forth in this Office Action. Applicant appreciates the Examiner's indication of allowable subject matter, but believes that all of the claims are allowable for the reasons given above.

CONCLUSION

In view of the above, Applicant respectfully requests reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the amendments and remarks presented herein, Applicant respectfully submits that claims 1-16 are not anticipated by nor rendered obvious by Alsenz-119, Alsenz-475, Shaw or their combination and thus, are in condition for allowance. As the claims are not anticipated by nor rendered obvious in view of the applied art, Applicant requests allowance of claims 1-16 in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,
McNEES, WALLACE & NURICK

/Brian T. Sattizahn/
By
Brian T. Sattizahn
Reg. No. 46,401
100 Pine Street, P.O. Box 1166
Harrisburg, PA 17108-1166
Tel: (717) 237-5258
Fax: (717) 237-5300

Dated: October 17, 2006